SIERRA SCIENTIFIC CORPORATION

Mini★Star* I & II

Intensified Vidicon Cameras

Ag 77

for very very low light.

Features:

1. Minimum detectable light level 10^{-7} footcandle (10^{-6} lux.)
2. Dynamic range for ± 3db output variation - 3×10^{7}.
3. Safe for 3 second exposure to focused solar image, through f1.4 lens.
4. Fast compensation - less than 5 seconds for full dynamic range.
5. Separate replacement of vidicon and image intensifier.
6. One piece construction.
7. All regulated DC supplies.
8. Compatibility with MINICON options.
9. Beam cut off in the event of sweep failure.
10. Accepts any C-Mount lens.
11. Low power consumption.

The cameras in this series provide for one or two stage image intensification of a standard MINICON one piece camera to increase sensitivity to low light levels and dynamic range over the characteristics of the vidicon alone. Models M251 and M271 add the one and two stage intensifiers respectively. Models M252 and M272 also include automatic filter assembles to increase the dynamic range still further by approximately 1000 times. The automatic filter assembly uses a separate sensor which assures a positive response within less than two seconds.

These low-light-level units with all automatic controls and built-in overload protection, are ideal for 24 hour unattended surveillance applications. They may also be used, with or without automatic controls for uses such as X-ray inspection, scientific instrumentation, etc. The one piece construction is compact and convenient and the video output will drive up to 1000 feet of RG59/U or 2000 feet of RG11/U coaxial cable at full performance.

The light level control on these cameras, with the motor driven filter wheel, operates in three stages. The first, fastest and most limited is the Automatic Gain Control in the video amplifier with a range of about 30:1. The second stage is applied to the intensifier power supply to control the light level at the image tube faceplate. With a single intensifier section, this increases the range by 100:1. Finally, on the cameras fitted with the motorized filter wheel, the range is increased by another factor of 1000:1 in two steps. The motor is controlled by a separate sensor and circuit so as to interpose a neutral density filter between the lens and the intensifier input.

These intensified MINICON cameras provide a series of small, high quality, low-light-level instruments at low cost. They are precision instruments which feature high sensitivity and dynamic range, ultra sharp images with good linearity and 12 MHz bandwidth. They can be operated from a wide range of power sources (50/60Hz) at less than 40 watts input and can be set up for line rates from 128 to 1023. Synchronization output conforms to EIA RS/330 or RS/343.

All circuitry is on high grade glass epoxy boards and all maintenance, including removal of P.C. boards, and replacement of the image tube assembly can be accomplished without dismantling the camera.

Performance vs Illuminance at faceplate at 2870° K footcandles (lux).

Comparison of standard M201V and Intensified Cameras

CAMERAS	INTENSIFICATION & (BRIGHTNESS CONT.)	USEABLE PICTURE FOR 10nA SIGNAL fc.	USEABLE PICTURE FOR 10nA SIGNAL lux.	FULL PERFORMANCE DYNAMIC RANGE (ABOVE 100nA SIG.) fc	FULL PERFORMANCE DYNAMIC RANGE (ABOVE 100nA SIG.) lux.	fc	lux.	USEABLE DYNAMIC RANGE
M201V	none	0.01	(0.1)	0.5	(5)	10^{3}	(10^{4})	10^{5}
M251V	one stage (manual)	3×10^{-4}	(3×10^{-3})	0.01	(0.1)	10	(100)	3×10^{4}
M252V	One stage (auto)	3×10^{-4}	(3×10^{-3})	0.01	(0.1)	10^{4}	(10^{5})	3×10^{7}
M271V	two stage (manual)	10^{-5}	(10^{-4})	3×10^{-4}	(3×10^{-3})	10	(100)	10^{6}
M272V	two stage (auto)	10^{-5}	(10^{-4})	3×10^{-4}	(3×10^{-3})	10^{4}	(10^{5})	10^{9}

Full performance = Complete resolution of gray scales and ± 3db video output variation
All cameras above using type II photo conductor vidicons.

* MINI★STAR is a trademark of Sierra Scientific Corporation.

L2300302276

SIERRA SCIENTIFIC CORPORATION
2189 Leghorn Street • Mountain View, Calif. 94043 • Telephone (415) 969-9315

Mini★Star® I & II
Specifications

Linearity: Max. error from true position in central circular area equal to picture height:
± 1.5% for one-stage intensification
± 2.5% for two-stage intensification

Beam Control: Electromagnetic alignment
Focusing current regulated ± 1%
Image tube grid voltages regulated ± 1%
Electromagnetic field adjustabel from 35-55 gauss.
Centering controls within housing.
Sweep reversal; grid & target voltage ranges - jumper.

Video Processing:
A.G.C. maintains output within ± 3db for 30:1 light change.
Aperture corrector - peak at 7 or 15 MHz.
Adj. 0 to 10db.
75 ohm, source terminated output through BNC connector.
Equivalent Noise input: 3nA (max.) over 12 MHz, 2nA over 5MHz.
Adjustable White clipping.
Video and sync output levels adjustable to EIA RS 330/343 standard.
Composite or non-composite video, video polarity reversal or bandwidth selectable by jumper.

Synchronization: 128 to 1029 lines by strapping.
1:1 or 2:1 interlace.
Free running or line-locked master oscillator (switch)
Sync. signal output conforms to EIA RS330 or RS343.

Image Tube: Will accept any one inch magnetic tube with fiber optic faceplate using sulphide, lead oxide or chalcogenide photo surfaces. (Note: specifications for sensitivity range, resolution, etc., are for cameras using vidicon [sulphide] tubes.)
Accepts vidicons with any filament current from 95 to 600mA.

Resolution: With 4569 Vidicon operated at 525 lines, 30 frames per second 4:3 AR; 550 TV lines/ph for one stage intensification, 450 TV lines/ph for two stage. (central area) 375 lines in corners.

Safe Exposure Level: (Max. Level for 3 seconds) (For an image size 10% of picture height.)
Intensified Vidicon - manual brightness control
10^7 footcandles (10^8 lux.)
Intensified Vidicon - automatic brightness control
10^8 footcandles (10^9 lux.)
Compensation for full range change; 5 sec. max.
No filter change - 1 second typical
Auto filter change - 2 seconds typical

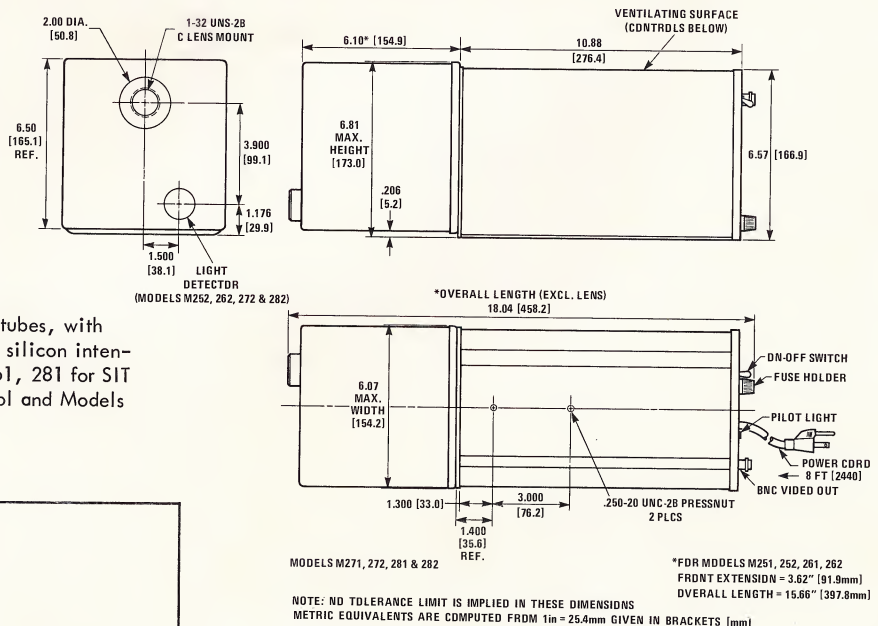
Power: 105 - 130/210-260 VAC 50-60Hz 40w MAX.
Eight-foot, 3 wire power cord.
Regulated D.C. supplies for all circuits.

Environmental: Meets all above specifications for:
Temperature: 0° to 50° C. (32° to 122° F.)
Humidity: up to 95% non-condensing.
Altitude: Sea level to 15,000 Ft. (400m)

OPTIONS: Remote Controls: Gain, Pedestal, Video Polarity, Focus, Beam, Target.
Switches: Line Rate, Sweep Reversal.
External Drive, Blanking, Drive Outputs, H & V
2 MHz Filter.

MECHANICAL: All Models H 6.81 m (173.0 mm)
W 6.07 m (154.2 mm)

	LENGTH in.	LENGTH mm.	WEIGHT lb.	WEIGHT kg.
M251	15.66	397.8	16.5	7.5
M252	15.66	397.8	17.0	7.7
M271	18.04	458.2	18.0	8.2
M272	18.04	458.2	18.5	8.4



These cameras are also available with SIT and ISIT tubes, with and without the automatic brightness control. The silicon intensified versions are called MINI STAR S, Models 261, 281 for SIT and ISIT respectively with manual brightness control and Models 262 and 282 with automatic brightness control.

Represented by: